

CLAIMS

1. A method of enabling an application program running on an electronic device to manipulate media, comprising the step of generating and displaying a video window associated with the application program;

characterized in that media manipulation tools, enabling an end-user to manipulate the media, are generated and deployed for any application program running on the device for which an associated video window can be generated.

10 2. The method of Claim 1 in which the user interface components associated with the media manipulation tools are rendered in or adjacent to the video window.

15 3. The method of Claim 1 in which the visual appearance and/or function of some or all elements of the media manipulation tools are the same across all the application programs for which an associated video window can be generated.

4. The method of Claims 1-3 in which the media manipulation tools make use of a streaming media architecture that is common across all of the application programs.

20 5. The method of Claim 1 in which the media manipulation tools are generated and deployed by a system that comprises:

(a) a device independent media manipulation layer; and

(b) a device independent insulation layer below the media manipulation layer to insulate the media manipulation layer from a device specific media handling or streaming media subsystem;

(c) a device GUI abstraction layer above the media manipulation layer to insulate the media manipulation layer from the display characteristics of the specific device.

5 6. The method of any preceding claim in which the media manipulation tools perform one or more of the following manipulations:

editing; trimming; annotating, seeking, selecting effects; transitions; re-ordering; publishing; still extraction, vector graphic alteration; create storyboard.

10 7. The method of any preceding claim in which the device is a personal computer, a television decoder box, a personal video recorder, a personal digital assistant, a mobile telephone, a smartphone or a video kiosk.

15 8. The method of any preceding claim in which the device is programmed with one or more of the following components to generate, deploy, display or operate the media manipulation tools:

(a) A software component that implements a cache for portions of a media file in the memory of the client machine;

20 (b) A software component that implements a process equivalent to a state machine, whose transitions guide a user through a sequence of interactions with a graphical user interface (GUI);

(c) A software graphics component of a GUI, that implements visual feedback to a user of the current state;

25 (d) A software graphics component of a GUI that implements a visual metaphor that provides a user with an intuitive understanding of the operation of the GUI;

(e) A software graphics renderer component that allows combination and/or overlay of graphical data for a GUI with pixels that are decoded from the video part of the media file and rendered into the video window.

- (f) A software component that implements an export of a processed media to memory;
- (g) A software component that implements the ability to read a description file(s) and construct playback in accordance with set instructions, or write such instructions from a current playback;
- 5 (h) A software component of a GUI that allows labels or triggers of various types to be added to significant parts of the media file in order to identify them as such and/or to enable seeking to these significant parts.

10 9. The method of any preceding claim wherein the media manipulation tools allow meta data to be added to significant parts of a media file, the meta data comprising one or more of:

- (a) timecode
- (b) logo bit map (for example a broadcast station logo)
- 15 (c) logo marker
- (d) captioning (closed caption text)
- (e) shot-change
- (f) video description data
- (g) audio description data
- 20 (h) user-inserted bookmarks
- (i) client-targeted information and advertising
- (j) digital rights management data
- (k) watermark data.
- (l) conformance data.
- 25 (m) Edit-in and edit-out points
- (n) GOP boundaries
- (o) Storyboarding

30 10. The method of any preceding claim wherein the media manipulation tools allow triggers to be added to significant parts of a media file, the triggers comprising one or more of: initiate pop-up dialogue boxes, hold frames for a given duration, loop and messaging.

11. The method of Claim 9 in which the device is programmed with a software decoder component that maps the meta-data contained in a media file to labels in the media file.

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12. The method of any preceding claim in which the device is programmed with a software agent component that maps aspects of the interactive behaviour of a user into configuration information that modifies aspects of the behaviour of the media manipulation tools.

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13. The method of any preceding Claim further comprising the step of providing a media file that may be selected and played by the user, which provides instruction in the use of the media manipulation tools.

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14. The method of any preceding claim where the visual appearance of a GUI for the media manipulation tools is sensitive to the context in which a user of the system is working, such that the visual impact of the GUI is absent or minimised when not needed.

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15. The method of Claim 14 where the context in which the user of the system is working is determined by reference to the position of a screen cursor with respect to the position of the video window, such that the GUI for the media manipulation tools is only displayed and enabled after the cursor has been positioned over the video window.

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16. The method of any preceding Claim in which the or each application program is selected from the following list of application program types:

media players, document preparation programs, help systems, web browsers, slide preparation programs, electronic mail programs, interactive learning applications, games programs, security and surveillance systems, collaborative systems, computer-aided design programs.

17. The method of any preceding Claim in which the media manipulation tools are deployed by a computer based system that comprises a device specific GUI abstraction layer and an underlying, separate media handling layer and/or media manipulation layer; the separation enabling different devices to be deployed with different kinds of GUI abstraction layers so that the UI components associated with the media manipulation tools appear different on these different devices, but the underlying media handling and/or media manipulation layers are common.

5 18. The method of any preceding Claim in which a representation of the structure of a new media clip generated using the media manipulation tools is generated using a mark-up language 10 such as SMIL (Synchronous Multimedia Interchange Language).

15 19. The method of Claim 18 in which, if an actual physical clip of the edited material is needed then the mark up language file is used to build a filtergraph as a dynamic transient process which, when executed, generates an output file by decoding, cutting, and then re-encoding the media in compressed format.

20 20. The method of any preceding Claim wherein the media manipulation layer is implemented as a plug-in component to a media player.

21. The method of any preceding Claim wherein the media manipulation tools appear to be 20 intrinsic to a media player application associated with the video window.

25 22. A device programmed with software that, when running enables an application program to manipulate media, the software being operable to generate and display a video window associated with the application program; the device being programmed with further software that deploys media manipulation tools enabling an end-user to manipulate the media;

30 characterized in that the further software is operable to deploy media manipulation tools for any application program running on the device for which an associated video window can be generated.

23. The device of Claim 23, in which the software and the further software, when running, enables the method of any preceding Claims 1 – 21 to be performed.

24. The device of Claim 22, being a personal computer, a television decoder box, a personal
5 video recorder, a personal digital assistant, a mobile telephone, a smartphone, or a video kiosk.